**Outline**

**Temporal and Infratemporal regions**

Dr. Bennett-Clarke

**General remarks**

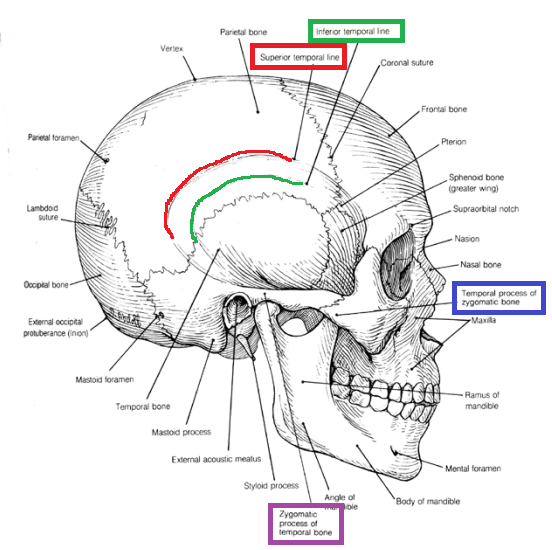
• The temporal and infratemporal regions are located superior and inferior to the zygomatic arch respectively.

• The **temporal region** is an oval region bounded by the temporal lines, frontal and zygomatic bones.

• Temporalis muscle fills the temporal fossa

**Important Bony landmarks of the region**

1. Temporal bone 🡪 Forms floor of fossa
   1. Temporal lines 🡪 Attachment points of Temporalis muscle & Fascia
      1. Inferior Temporal Line
      2. Superior Temporal Line
2. Infratemporal Region = Deep to Zygomatic arch & Ramus of mandible



1. Zygomatic arch 🡪 Important Attachment of the Masseter Muscle

c. Temporal bone 🡪 Zygomatic Process of the Temporal bone

d. Zygomatic bone 🡪 Temporal Process of the Temporal bone

Temporalis tendon dives deep to it

C. Mandible

1. Body

2. Ramus

3. Angle 🡪 Where Ramus & Body Come together

4. Mandibular notch 🡪Masseteric nerve, artery & vein pass over to supply Masseter

5. Coronoid process 🡪 Temporalis Muscle attaches here

6. Mandiblar head/condylar process🡪articulation of Temporomandibular Joint (TMJ)

7. Mental foramen 🡪 Exit of Mandibular Canal

8. Lingula 🡪 Sphenomandibular ligament attaches here = attach mandible to skull

9. Mandibular foramen 🡪 Adjacent to Lingula = Opening to mandibular canal

🡪Inferior Alveolar Nerve Artery & Vein travels through here

10. Mylohyoid groove 🡪 Mylohyoid Nerve exits here off alveolar nerve

🡪Mylohyoid & Anterior Belly of Digastric

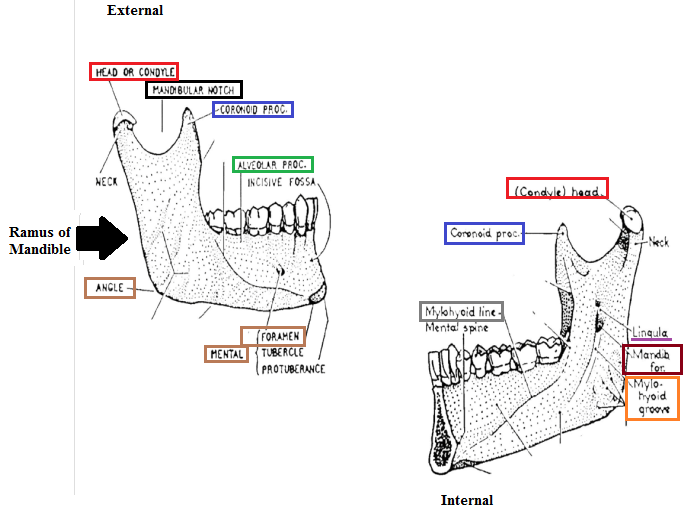
11. Mylohyoid line 🡪Attachment of Mylohyoid Muscle = form floor of oral cavity

12. Mental spine 🡪 Geniohyoid & Genioglosus Muscles attach here

13. Mandibular Alveolar Process = holds teeth

\*\*\*Mandibular Teeth are important for maintaining the shape of mandible

* Use Prosthetic Teeth to maintain shape of Mandible & Maxilla



D. Sphenoid bone

1. Greater wing 🡪 Part of Middle Fossa

2. Lesser wing 🡪 Part of Anterior Fossa

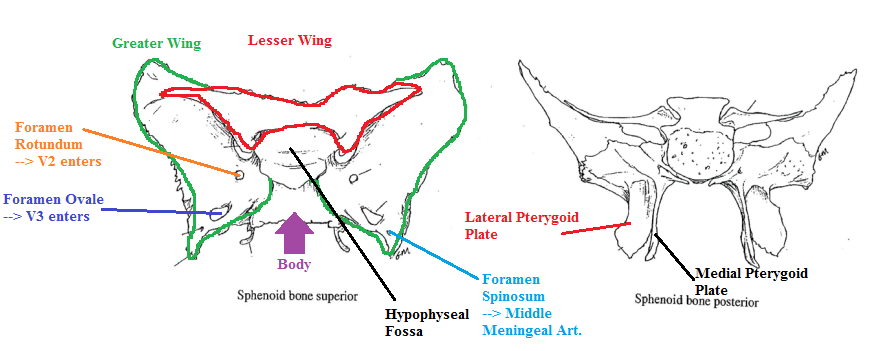
3. Body 🡪 with hypophyseal/pituitary fossa

4. Foramen ovale 🡪 Mandibular Nerve (V3) enter skull

5. Foramen rotundum 🡪 Maxillary nerve (V2) enters

6. Foramen spinosum 🡪 Middle Meningeal vessels and Meningeal Nerve

7. Lateral pterygoid plate 🡪Attachment for

8. Medial pterygoid plate 🡪 Muscle of soft palate & Pharynx

9. Superior Orbital Fissure 🡪 many Structures that come into & out of orbit

The **infratemporal region** is an irregular shaped space inferior to the zygomatic arch and posterior to the maxilla and deep to the ramus of the mandible.

**Contents of the infratemporal fossa:**

1. Portions of the muscles of mastication

2. Branches of the maxillary artery

3. Pterygoid plexus of veins

4. Branches of the mandibular nerve (CN V3)

1. **Muscles of mastication**- these muscles primarily move the mandible to facilitate chewing. Develop from 1st Pharyngeal Arch. Actions that muscle may have on the mandible include:

Protraction 🡪 Muscles of mastication & Important in chewing/grinding

Retraction 🡪 Muscles of mastication & Important in chewing/grinding

Elevation (Closing Mouth = biting not so much chewing)

Depression (Opening Mouth)

🡪No muscles of mastication act to do this

🡪Mostly passive

🡪 Posterior Digastric & Mylohyoid (alittle)

All of these actions are used to accomplish “chewing” or mastication.

A. Temporalis

O: Temporal Lines, Temporal Fossa, & Temporalis Fascia (A thick Fascia)

I: Broad flat tendon inserting on the Coronoid process & all of anterior ramus of mandible

Action: Elevation & Retraction (Primary Retractor)

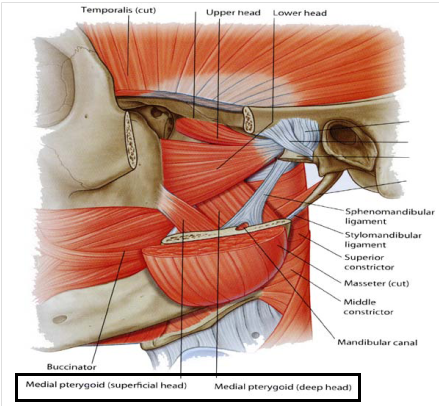
B. Masseter

Origin: Zygomatic Arch & Posterior Maxilla

Insertion: External Surface of Mandibular Ramus

🡪Goes all the way to angle of mandible

Action: Elevation & Protraction



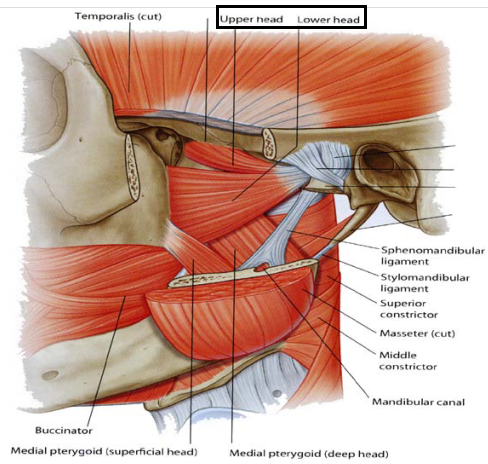
C. Medial Pterygoid

Origin: Medial Surface of Lateral Pterygoid Plate & Posterior Maxilla

Insertion: Internal Ramus of the Mandible

Action: Elevation & Protraction

\*\*Masseter & Medial Pterygoid act as a sling for the Mandible

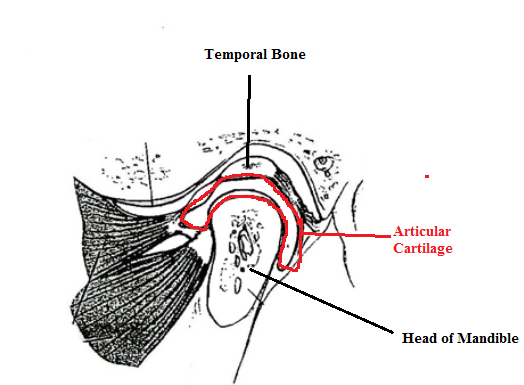


D. Lateral Pterygoid

Origin: Lateral Aspect of lateral Pterygoid Plate 7 Tubercle of body of the Sphenoid

Insertion: mandibular Head & Articular Cartilage of Temporomandibular Joint

Action: Protraction



2. **Branches of the maxillary artery**- The maxillary artery is one of the terminal branches of the external carotid. It passes posterior to the neck of the mandible. It may pass anterior or posterior to the lateral pterygoid muscle.

Important branches of the maxillary artery (actually has 17 branches – many in nasal cavity) in the infratemporal fossa: 🡪 Supplies muscles of mastication with named branches to the muscles

1. Middle meningeal 🡪 Goes thru foramen spinosum

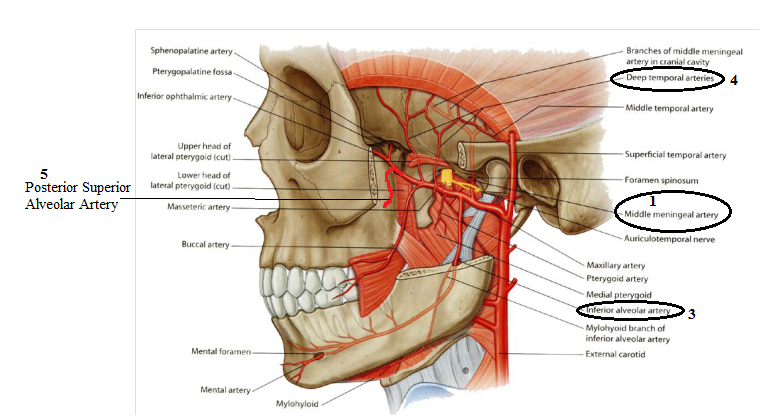
🡪 Very posterior & Short

2. Accessory meningeal (may not be present) 🡪 Uses Foramen Ovale with V3 = blood supply to dura mater

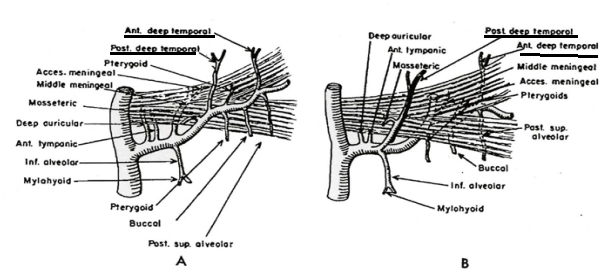
3. Inferior alveolar 🡪 Enter mandibular canal, give off dental branches & exit as mental artery

4. Deep temporals 🡪 Blood supply to temporalis (important land marks in dissection)

5. Posterior superior alveolar 🡪Pierce Maxilla to supply maxillary teeth



The maxillary artery leaves the infratemporal fossa to enter the posterior aspect of the nasal cavity.



3. **Pterygoid plexus of veins**- this important very dense plexus of veins lies deep to the temporalis muscle and drains to maxillary. This plexus can drain to orbital veins, superficial face, & pharynx. It receives veins from orbit, face, & pharynx.

🡪May drain to cavernous sinus by very small veins



4. **Branches of the mandibular nerve**- all of the nerves in the infratemporal region are branches of the mandibular nerve (CN V3) except for the chorda tympani. The mandibular nerve has both motor and sensory fibers. Goes through the Foramen Ovale into Infratemporal fossa where it divides into its nerves

**Motor branches:** 🡪 For Skeletal Muscles derived from 1st pharyngeal arch

1. To the muscles of mastication

A. Nerve to Temporalis

B. Nerve to Masseter

C. Nerve to Medial Pterygoid

D. Nerve to Lateral Pterygoid

2. To the tensor muscles

E. Tensor Veli Palatinie 🡪 important muscle of the soft palate

F. Tensor Tympani 🡪 muscle of middle ear = Dampens loud sounds

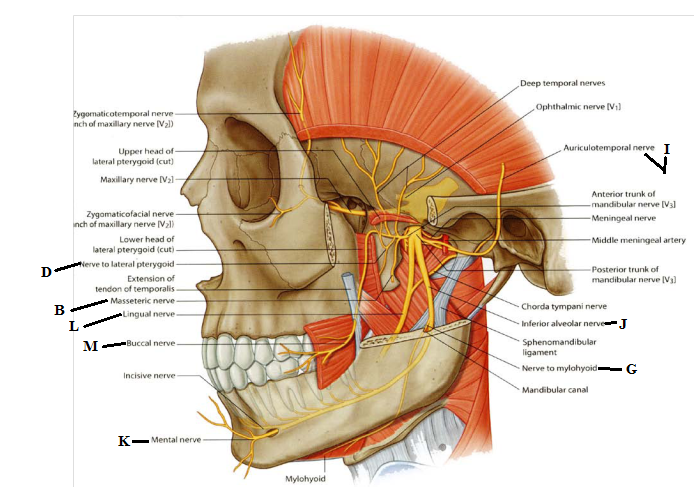
3. Inferior Alveolar Nerve

G. Nerve to Mylohyoid 🡪 Branch of inferior alveolar

H. Nerve to Anterior belly of Digastric 🡪 Branch of inferior alveolar

**Sensory branches: 🡪 Skin of chin, cheek, anterior ear, temple, & scalp**

1. Auriculotemporal 🡪 ends in skin of anterior ear, temple, & scalp
   1. Frequently encircles Middle Meningeal Artery
   2. Travels with Superficial Temporal Artery
2. Inferior alveolar 🡪 ends in lower teeth & gums
3. Mental nerve = termination of Inferior Alveolar Nerve🡪Ends in Lower lib & Chin
4. Lingual 🡪 Ends in anterior 2/3 of Tongue = pain, touch, & temperature
   1. Also mucous membrane on floor of the Oral Cavity
5. Buccal (Long Buccal Nerve) 🡪 Ends in skin of cheek
   1. Pierces the Buccinator & supplies mucous membrane of lining the cheek
   2. Buccinator = Muscle of facial expression (Innervation = CN VII)
      1. Fills your cheek
      2. Holds resistance for oral cavity
         1. Example = straw, baby suckling, trumpet players



**Otic ganglion** (parasympathetic ganglion) involved in the postganglionic innervation of the parotid gland.

**Chorda tympani**- Branch of the facial nerve that joins the lingual nerve in the infratemporal fossa and carries taste fibers from the anterior 2/3 of the tongue as well as preganglionic parasympathetic fibers to the submandibular and sublingual glands.

